

(No Model.)

E. ATKINSON.
AUTOMATIC SPRINKLER.

No. 417,699.

Patented Dec. 24, 1889.

Fig. 1.

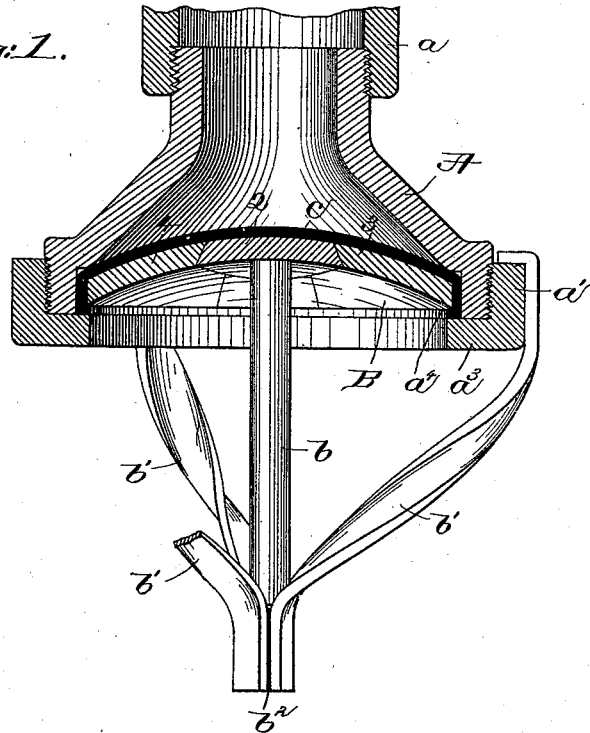


Fig. 2.

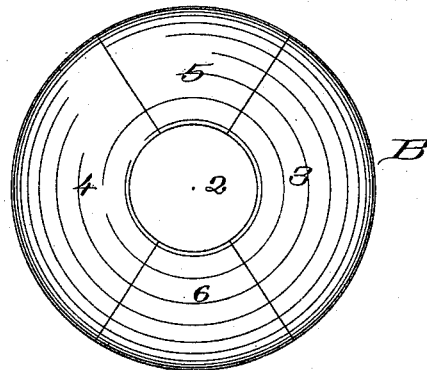
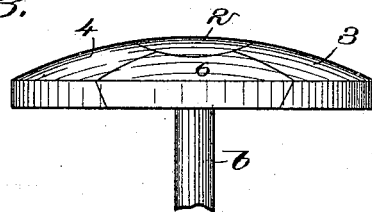


Fig. 3.



Witnesses:
Howard Eaton.
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UNITED STATES PATENT OFFICE.

EDWARD ATKINSON, OF BROOKLINE, MASSACHUSETTS.

AUTOMATIC SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 417,699, dated December 24, 1889.

Application filed June 8, 1889. Serial No. 315,544. (No model.)

To all whom it may concern:

Be it known that I, EDWARD ATKINSON, of Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Automatic Sprinklers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to automatic sprinklers of that class in which a valve is held closed against the pressure of water or other fluid or air by means of solder or other fusible material capable of melting at a substantially low temperature.

My invention has for its object to provide a simple and efficient automatic sprinkler in which levers and set-screws commonly employed with sprinklers of this class may be dispensed with; and it consists in novel features of construction, as will be pointed out in the claims at the end of this specification.

Figure 1 is a vertical longitudinal section of an automatic sprinkler embodying my invention, connected with a water-supply pipe; Fig. 2, a top or plan view of my improved form of valve, and Fig. 3 a side elevation of the valve shown in Fig. 2.

The sprinkler consists, essentially, of a head or case A, preferably made funnel-shaped, as herein shown, and provided at its upper end with screw-threads to engage screw-threads on the inner side of a pipe *a*, which may be a main or a branch pipe of a water system in a building. The head or case A, which may be made of metal, indurated fiber, or other usual or desired material, is herein shown as provided with screw-threads on its outer surface, at or near its lower extremity, which are engaged by a threaded collar *a'*, provided with an annular rim *a''*, preferably made of sufficient width to extend beyond the rim or lower edge of the case or head A to form a seat for a valve B, the annular rim *a''* having, as shown, an upturned edge or flange *a'''*. The valve B is preferably made of independent sections or parts, herein shown as five in number and marked, respectively, 2 3 4 5 6, which, when fitted together, will preferably form a dome or arch shaped valve, the central section 2 constituting the key of the dome or arch. The central section 2 is pref-

erably made circular in form and beveled or inclined, the narrower side being upward. The remaining sections will preferably be made in pairs, one pair, as 3 4, being made larger than the other pair 5 6, the larger sections having their smaller surface upward and the smaller sections having their larger surface upward. The central section or key 2 is provided with a stem or rod *b*, which may be supported below the valve in any desired manner, but preferably, as herein shown, by metallic bands *b'*, having their lower ends preferably twisted together and firmly secured by solder or other fusible material having a comparatively low melting-point, the said solder being represented by heavy dark lines *b''*, Fig. 1. By twisting the bands *b'*, I am enabled to bring the broad flat ends, rather than the edges of these bands, in juxtaposition to receive a quantity of solder adequate to unite the bands and sustain the load on the valve. To render the valve perfectly water-tight, it may be covered with thin waterproof packing *c*, which may be tea-lead, oiled silk, paraffine-paper, or any other usual waterproofing material. The water-proof packing material may cover the entire dome-shaped valve; or it may be placed between the circumference of the dome-shaped valve and the walls of the case or body A. The dome-shaped valve, consisting, as herein shown, of five sections, is placed somewhat loosely in the case or head, and may be held there by the stem or rod *b*, assisted by the pressure of the several parts against the sprinkler head or case.

In the operation of my improved sprinkler the valve is held closed against the pressure of the water in the pipe *a* and sprinkler-head A until the heat in the locality in which the sprinkler is placed has reached a temperature sufficiently high to melt the solder *b''*. When the solder melts, the water forces the key-section 2 of the valve from its place, and the integrity of the dome-shaped valve is thus destroyed, the sections of the valve being thrown down away from the sprinkler case or head, thus affording an outlet for the water, which will preferably be projected upon a deflector located below the sprinkler and not herein shown, but which may be of any

well-known construction, and by which the water will be deflected outwardly in the form of a spray.

I have herein shown the outer edge of the valve resting upon the annular flange a^3 of the ring a' ; but it is evident that the said flange may be made an integral part of the sprinkler-head. So, also, I prefer to make the dome-shaped valve in sections; but I do not desire to limit my invention to this construction, as the same may be made of a single piece of metal or other material possessing sufficient rigidity to withstand the pressure of the water when supported at its center by the stem resting on the bands b' , but yet having sufficient elasticity or flexibility to be distorted out of shape by the pressure of the water when the central support is withdrawn—that is, when the solder b^2 melts.

The sprinkler shown in the drawings is not made to any particular size or scale.

I claim—

1. In an automatic sprinkler, the combination, with a sprinkler head or case, of a valve to close its outlet, a valve-stem to sustain said valve, and independent bands loosely suspended from the head and having convergent lower flat ends united by solder and upon which the valve-stem rests directly and without the interposition of a cross-bar, the said united ends of the bands themselves thus forming a support for the valve-stem while so united, and falling away from one another when the solder fuses to drop the valve, substantially as described.

2. In an automatic sprinkler, the combination, with a sprinkler head or case, of a valve composed of independent sections to close the outlet of the said head, a rod or stem to

sustain the said valve, a support for said rod or stem composed of independent strips or bands, and a fusible material to unite said strips or bands, substantially as described.

3. In an automatic sprinkler, the combination, with a sprinkler head or case, of a valve composed of independent sections to close the outlet of the said head, a water-proof packing to render said valve water-tight, a rod or stem to sustain the said valve, a support for said rod or stem composed of independent strips or bands, and a fusible material to unite said strips or bands, substantially as described.

4. In an automatic sprinkler, the combination, with a sprinkler head or case, of a valve composed of independent sections to close the outlet of the said head, a rod or stem to sustain said valve, and a support for said rod or stem, substantially as described.

5. In an automatic sprinkler, the combination, with a sprinkler head or case, of a valve composed of independent sections to close the outlet of the said head, a rod or stem to sustain said valve, a support for said rod or stem, composed of independent twisted strips or bands having flat ends brought to a common center beneath the valve rod or stem with their flat portions adjacent, and a fusible material applied to said flat ends to unite said strips or bands, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD ATKINSON.

Witnesses:

JAS. H. CHURCHILL,
FREDERICK L. EMERY.